ARS Web Page Design and Development Guidelines

The ARS Web Page Design and Development Guide is provided to promote a consistent and quality image for web pages throughout ARS. It is necessary to maintain contact and work with the ARS Webmaster to ensure Agency web pages are designed and developed in line with agency perspective. Web developers should understand the potential impact on the ARS web page customers should they deviate from recommended guidelines.

This guide was developed before the new Web Information Architecture (IA) and does not address issues surrounding the new IA. The principles put forth in this document are valid design considerations which are useful for building web pages..

I. Planning

Thorough planning is the most important step in developing Agency web sites. Careful consideration must be given to several issues prior to the actual design and development of the web site including:

A. What are the objectives and who is the primary audience of the web site (i.e., the general public, the scientific and research community, internal agency use only, etc.)? Giving consideration to the objectives of the web site as well as the technical and organizational knowledge level of the target audience will impact the organization, content, and overall design of the web site.
B. What technical skill and resources are available to develop and maintain the web site? Will the web site be developed and maintained by a dedicated webmaster, collateral duty of existing staff, or will contract resources be obtained? An extensive and dynamic web site will require greater technical skill, time, and other resources to both develop and maintain than a simpler web site that will be updated less often.
C. Where will the web site be hosted? What impact, if any, will the host have on design and development tools and resources, platform, size of web site, maintenance and frequency of content updates, special configuration issues, etc.
D. Contact the ARS Webmaster to discuss the project.

Once these questions have been addressed, a project plan should be developed to document these issues as well as key project milestones, target dates, responsibilities, and other important issues and considerations.

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All web sites must reflect a professional and positive image for the Agency and be of the highest quality of visual presentation and consistency. As the leading agricultural scientific research organization in the world, ARS web sites must be a source of timely, accurate, and relevant information for our visitors, not just point them to other sites. As such, the overall design, organization, and content of your web site must be carefully designed and

implemented.

A **General:**

1. See Section 4 of the ARS web site policy for minimum required web page content requirement for all Agency web sites.
2. Organize site content within subject categories. Avoid grouping content by organization structure since this will not be familiar to most visitors.
3. Flow-chart the pages of the web site. This will help you organize and track the various pages, directories in which they reside, and the relationship (links) between web pages.
4. If web design skills within the organization are limited, you may wish to consider using a professional web designer.
5. A template containing the minimum web page elements is available from the ARS Webmaster for web page developers who seek assistance in structuring a new web page.

B. **Working Prototype:**

1. Create a working prototype of the web site with text only (no graphics) for testing on the host web server. The pages should only have a title, minimum required page elements, and links. The prototype will allow you to test the "flow" of the web site and confirm that the links between pages work properly. Text only prototyping sets aside design issues such as color or graphics, thus allowing you to focus on the organization and arrangement of the pages and content.
2. The main or initial web page for the web site is the "front door" from which all other sub-pages are linked. The prototype front door and sub-pages should include all required navigational links for moving through all site pages. Navigational links are most effective when placed near the top and bottom of the web page.
3. The site should be no more than five levels (links) deep. Studies have indicated that visitors will lose interest if they have to click through more than 5 links to reach information they desire.
4. Test the prototype once it is complete. You may use volunteers from inside and outside your organization. Although you have minimal content on the pages other than the title, their feedback is important. Is the web site easy to understand and navigate? Adjust the web pages as needed, based on tester's comments.

C. **Visual Design - Combining Structure with Graphical Enhancement**

1. As a government web site, the visual design should look professional, formal, and official.
2. Keep the site simple and uncluttered. Limit the site to no more than 2-3 colors. Use only colors within the "web safe" color pallette. "Web safe" colors will

display consistently across computer platforms.

3. Use dark text with a contrasting light background. The use of light text on dark backgrounds can be difficult to read.
4. Design for 640 x 480 pixels resolution. This is still the most common resolution in use by the public. If you design your web pages for 800 x 600 pixels or higher, web users using 640 x 480 resolution will be forced to scroll sideways to see the entire web page.
5. Use emphasis (bold, italics, color change, etc.) sparingly. Do not underline text since it may be mistaken as a link.
6. Keep the arrangement of graphic elements, links, icons, color, and other page objects consistent throughout the web pages. There should also be a clear visual relationship (due to similarity) between the main (front door) web page and its subpages.
7. Use tables to organize the layout of web page elements.
8. Frames are more complex and can be difficult to maintain and support. It is therefore recommended avoiding the use of frames. If frames are the best solution to a design problem, please use care in designing with or implementing frames.
9. Use the title tag. The title should describe the page and contents.
10. Use meta tag information. This provides better search results on web search engines.
11. Pages should load quickly. If a web page requires more than 8 seconds to load, visitors will select “STOP” and go elsewhere.
12. Use meaningful text for links, avoid the use of "Click Here."
13. Each page should be no longer than 1.5 screens in length. If practical, break up long documents logically with links joining each section.
14. Once your web page design is final, create a web page template to simplify building the site.

D. **Graphics:**

1. Minimize the use of graphics as their use can increase download times. Use graphics related to the material (e.g. a picture of corn for text about corn research).
2. Keep graphics to file size of 17-30k or less if possible. Large graphics should be "split" so they will load in separate sections.
3. Use the ALT tag with graphics.
4. Balance the quality of image with a quick download time. Test different levels of compression for JPEG files. Too much compression will distort the image, too little compression will increase download time.
5. JPEG files provide up to 16 million colors and should be used when continuous shades of colors are needed, such as paintings and photographs.
6. GIF files support up to 256 colors and are useful for charts, graphics, and line drawings with color.
7. Avoid using animated graphics, “LiveAudio”, “LiveVideo”, or other multimedia unless there’s a compelling reason. Files of these types are very large and will greatly increase download times and significantly slow traffic on the network. If

the need to host LiveAudio or LiveVideo arises, contact the ARS Webmaster to discuss options.

8. Departmental regulations require that you obtain written authorization from owners prior to using photographs or graphics not owned by the government. Also obtain written permission before using graphic materials obtained from outside ARS. No permission is required for ARS owned photographs and graphics.
9. Avoid the use of background images.

E. **Navigation Links**:

1. If graphic navigation bars are used, provide access to the same links using text-only links. Navigation links should appear at the top and bottom of web pages.
2. The front door page should include links to primary subpages or subject areas within that site.
3. Include a "home" link to the front door page on all subpages.
4. Provide a “Top of Page” link on all pages more than one screen deep.
5. Whenever possible, provide a Site Map and a Search Engine.
6. Links should be made to live pages only. Avoid use of "Under Construction."
7. Test links on your web pages using link-checker software.

F. **Other Design Considerations:**

1. Material in formats other than those native to the web (HTML, GIF files, JPEG files), should be so labeled with the type of file, file size, and a link to download any needed plug-in or helper application (e.g. Adobe Acrobat Reader).
2. Inform the web visitor of the need for a browser plug-in and potential download times for larger files.
3. Create web pages to be compatible with HTML version 2.0, that is readable by older browsers.
4. Avoid use of layers, DHTML, and other "cutting edge" technologies as older browsers cannot interpret these technologies. If you must use these higher-end tools, provide a "low-tech" alternative (text).
5. Use client-side image maps only, and duplicate links from the image as text links.
6. Don't use HTML conversion/export features from wordprocessors or other programs, as these utilities usually generate HTML that is filled with unnecessary codes.
7. Check web pages to be sure they work with the major web browsers.
8. For information and support, please contact the ARS Webmaster, 301 504-6155 or jstewart@ars.usda.gov